

REMARKS

This responds to the Office Action dated on June 2, 2005. By this amendment, no claims were amended, canceled, or added. As a result, claims 33-42, 55-62 and 69-82 remain pending in this application. Applicant requests reconsideration of the application in view of the following remarks.

§103 Rejection of the Claims

A. Rejection: Claims 34-39 and 55-62 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

B. Response: In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claim 33 recites "...moving the cleaning surface into contact with the support adapted to releasably hold a wafer; and removing contaminants from the support by vacuuming the contaminants through the cleaning head assembly." The Shuji reference fails to teach or suggest the step of removing the contaminants from the support by vacuuming the contaminants through the cleaning head assembly. Shuji teaches exactly the opposite. The contaminants are essentially blown off the support by "jetting of acetone...and jetting of N₂ gas..." (See penultimate line of the Abstract of Shuji) through the cleaning head assembly. The "...cleaning head part 51 includes "...a jet port jetting acetone and N₂ gas..." (See line 4 of the second paragraph of the Abstract of Shuji). Modifying the Shuji reference as suggested by the Office

Action would destroy one of the main purposes or functions of the Shuiji reference, namely to clean the spin chuck by jetting the spin chuck with acetone and N₂ gas. Simply put, the purpose of the Shuiji device would be destroyed if modified with the Madea et al. as suggested by the Office Action. In addition to destroying the purpose of the Shuiji reference, there would be no reasonable expectation of success since pulling a vacuum through the jet ports of Shuiji also would not work. Jet ports are small. Pulling a vacuum through the jet ports of Shuiji would result in a very small vacuum force. In addition, contaminant particles could plug the small jet ports.

The Madea et al. reference teaches removing contaminants from an entirely different portion of the semiconductor fabrication apparatus. Madea et al. does not even teach or suggest removing contaminants from the support, as recited in claim 33. Rather the Madea et al. reference teaches cleaning of the gas manifold which places gas into the chamber during a chemical vapor deposition process. Therefore, it is doubtful one of ordinary skill in the art of cleaning a chuck or head for holding the wafers would look to a reference that cleaned an entirely different portion of a semiconductor fabrication apparatus. At best a combination of these two references would yield a device for cleaning the manifold that jets off the contaminants and there would be no teaching regarding handling or removing the contaminants.

As a result, the Office Action failed to set forth a proper *prima facie* case of obviousness with respect to claim 33 since there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In fact, combining the teachings would destroy the purpose of the Shuiji reference. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would not work, for the reasons described above. Moreover, the Office Action appears to have used the applicant's disclosure as a road map for the combination. As a result, claim 33 now overcomes the rejection under 35 U.S.C. § 103(a) as being unpatentable over Shuiji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

Claims 34-39 depend from claim 33 and include the recitations of claim 33 by their dependency. As a result, claims 34-39 now also overcome the rejection under 35 U.S.C. §

103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

Claim 55 recites “...removing contaminants from the support adapted to releasably hold a wafer by vacuuming the contaminants through the cleaning surface.” Applicant cannot find these features in Shuiji. In fact, the Shuiji reference teaches exactly the opposite since contaminants are removed from the support by the “jetting of acetone...and jetting of N₂ gas...” (See penultimate line of the Abstract of Shuiji) through the cleaning head assembly. The “...cleaning head part 51 includes “...a jet port jetting acetone and N₂ gas...” (See line 4 of the second paragraph of the Abstract of Shuiji). Modifying the Shuiji reference as suggested by the Office Action would destroy one of the main purposes or functions of the Shuiji reference, namely to clean the spin chuck by jetting the spin chuck with acetone and N₂ gas. Simply put, the purpose of the Shuiji device would be destroyed if modified with the Maeda et al. as suggested by the Office Action. In addition, to destroying the purpose of the Shuiji reference, there would be no reasonable expectation of success since pulling a vacuum through the jet ports of Shuiji also would not work. Jet ports are small. Pulling a vacuum through the jet ports of Shuiji would result in a very small vacuum force. In addition, contaminant particles could plug the small jet ports.

As a result, the Office Action failed to set forth a proper *prima facie* case of obviousness with respect to claim 55 since there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In fact, combining the teachings would destroy the purpose of the Shuiji reference. This destruction of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would not work, as described above. Moreover, the Office Action appears to have used the applicant's disclosure as a road map for the combination. As a result, claim 55 now overcomes the rejection under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

Claims 56-62 depend from claim 55 and include the recitations of claim 55 by their dependency. As a result, claims 56-62 now also overcome the rejection under 35 U.S.C. §

103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

C. Rejection: Claims 40-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Su et al. (U.S. Patent No. 5,507,874).

D. Response: Claims 40-41 depend from claim 33 and are believed to be allowable therewith as Su does not cure the defect resulting from combining the Shuiji reference and the Maeda et al. reference as discussed above under the “**B. Response**”. The fact that Su et al. teaches a specific cleaning material does not cure the shortcomings resulting from combining the Shuiji and the Maeda et al. references. No further comment at this time is believed to be necessary. Applicant reserves the right to further argue, at a later time, the patentable distinctions of claims 40-41 over the combination of Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Su et al. (U.S. Patent No. 5,507,874).

E. Rejection: Claim 42 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Satterfield et al. (U.S. Patent No. 5,364,144).

F. Response: : Claim 42 depends from claim 33 and are believed to be allowable therewith as Satterfield et al. teaches a specific cleaning material does not cure the shortcomings resulting from combining the Shuiji and the Maeda et al. references, as discussed above under the “**B. Response**”. The fact that Sattterfield et al. teaches specific material for the cleaning surface does not cure the shortcomings resulting from combining the Shuiji and the Maeda et al. references. No further comment at this time is believed to be necessary. Applicant reserves the right to further argue, at a later time, the patentable distinctions of claims 40-41 over the combination of Shuji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577), as applied to claims 33-39 and 55-62, and further in view of Satterfield et al. (U.S. Patent No. 5,364,144).

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

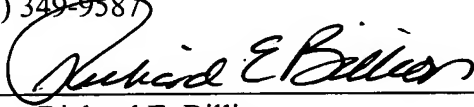
Respectfully submitted,

PAUL SHIRLEY ET AL.

By their Representatives,


SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9587

Date 10/28/05

By 
Richard E. Billion
Reg. No. 32,836

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 28 day of October, 2005.

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Name


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